Avishek Bhattacharjee

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EDUCATION

Program	Institution	%/CGPA	Year
MS by Research (CS&E)	Indian Institute of Technology Madras	9.20/10	2016 - 2020
Bachelor of Technology (CS&E)	Maulana Abul Kalam Azad University of Technology	9.16/10	2012 - 2016
ISC	St. Joseph's College	87.71%	2012
ICSE	St. Joseph's College	86.00%	2010

WORK EXPERIENCE

Project Officer **July 2016 - August 2016**

Indian Institute of Technology Kharagpur

- Worked on the search component of the research project titled "Development of National Digital Library (NDL) of India - Towards Building a National Asset."
- Contributed to building the schema of the digital library for data adaptation from various sources.
- Contributed to the development of the auto-complete feature and the advanced search component of the project.

PUBLICATIONS

- **D2SC-GAN: Dual Deep-Shallow Channeled Generative Adversarial Network for Classroom Attendance using Face Recognition**; ***Avishek Bhattacharjee*** *and Sukhendu Das*, in **IEEE Transactions on Biometrics, Behavior, and Identity Science**, Volume 2, Issue 3, pp. 223-234, July 2020.
- **PosIX-GAN: Generating multiple poses using GAN for Pose-Invariant Face Recognition**; ***Avishek Bhattacharjee****, Samik Banerjee and Sukhendu Das*, In Geometry Meets Deep Learning (GMDL), part of the 15th European Conference on Computer Vision (ECCV) Workshops, Munich, Germany, September 8-14, 2018.
- **SpoofNET: Resolving facial makeup based spoofs**; ***Avishek Bhattacharjee****, Samik Banerjee and Sukhendu Das*, In 11th Indian Conference on Computer Vision, Graphics and Image Processing (ICVGIP), Hyderabad, India, December 18-22, 2018.
- **DP-GAN: Dual Pathway Generative Adversarial Network for Face Recognition in degraded scenarios**; ***Avishek Bhattacharjee****, Samik Banerjee and Sukhendu Das*, In 11th Indian Conference on Computer Vision, Graphics and Image Processing (ICVGIP), Hyderabad, India, December 18-22, 2018.
- **Pose Invariant Face Recognition in Surveillance Scenarios using Extreme Learning Machine based Domain Adaptation**; *Avishek Bhattacharjee*, In 3rd International Conference on Computer Vision and Image Processing (CVIP), IIITDM Jabalpur, India, September 29 - October 1, 2018.
- **Deep Domain Adaptation for Face Recognition using images captured from surveillance cameras**; *Samik Banerjee,* ***Avishek Bhattacharjee*** *and Sukhendu Das*, In 17th IEEE Conference on Biometric Special Interest Group (BIOSIG), Darmstadt, Germany, September 27-28, 2018.

AREAS OF RESEARCH

- Computer Vision
- Statistical Learning Theory
- Deep Learning
- Pattern Recognition
- Optimization Methods for Computer Vision Applications

SKILLS

- **Programming Languages:** Java, Python, C.
- **Frameworks and Languages:** Keras, TensorFlow, PyTorch, MATLAB.
- **Applications and tools:** Pycharm, Eclipse, Android Studio, Microsoft Visual Studio, LaTeX, Git.

PROJECTS (Course)

PIFR using Extreme Learning Machine-based Domain Adaptation **(Jul 2017 - Nov 2017)**
Optimization Methods for Computer Vision Applications *Indian Institute of Technology Madras*

This project aims to perform pose invariant face recognition (PIFR) in cross-domain settings by making use of Extreme Learning Machines to perform Domain Adaptation on surveillance face datasets *viz.* ScFace, FR_SURV & Chokepoint.

Visible Output:

- **Pose Invariant Face Recognition in Surveillance Scenarios using Extreme Learning Machine based Domain Adaptation**; *Avishek Bhattacharjee*, In 3rd International Conference on Computer Vision and Image Processing (CVIP), IIITDM Jabalpur, India, September 29 - October 1, 2018.

PROJECTS (Research)

Pose Invariant Face Recognition **(Jan 2018 - Present)**
Indian Institute of Technology Madras

Proposed a novel generative adversarial network (GAN) based approach (PosIX-GAN) to perform pose invariant face recognition of the faces generated at nine different poses when given an input face image at any arbitrary pose, with the help of a novel "Patchwise MSE loss." Datasets used - MultiPIE & Head Pose Image Database.

Visible Output:

- **PosIX-GAN: Generating multiple poses using GAN for Pose-Invariant Face Recognition**; *Avishek Bhattacharjee, Samik Banerjee and Sukhendu Das,* In Geometry Meets Deep Learning (GMDL), part of the 15th European Conference on Computer Vision Workshops (ECCVW), Munich, Germany, September 8-14, 2018.

Makeup removal & face recognition invariant of makeup **(Jan 2018 - Present)**
Indian Institute of Technology Madras

Proposed a fully convolutional deep model called SpoofNet, which performs the task of makeup removal as well as recognition of a makeup-induced face. The proposed network also generates the face of the person from a closed set of subjects who could have been spoofed by the makeup face, solely based on makeup, with the help of a novel reconstruction loss. Datasets used - MIFS, YMU, VMU & BLAN.

Visible Output:

- **SpoofNET: Resolving facial makeup based spoofs**; *Avishek Bhattacharjee, Samik Banerjee and Sukhendu Das*, In 11th Indian Conference on Computer Vision, Graphics and Image Processing, Hyderabad, India, December 18-22, 2018.

Generative Adversarial Networks based Domain Adaptation **(Jan 2018 - Present)**
https://sites.google.com/view/icfd *Indian Institute of Technology Madras*

Proposed a dual-pathway GAN based domain adaptation approach to bridge the gap between the source and target domains by generating crisp detailed gallery images, from the probe image given as input to the network. The GAN incorporates a novel Multiscale Reconstruction loss to perform the task. A novel classroom dataset has also been proposed to explore the challenges faced in performing face recognition in classroom scenarios. Datasets used - ScFace, FR_SURV, Chokepoint, TIPD, and Indian Classroom Face Dataset (proposed).

Visible Output:

- **DP-GAN: Dual Pathway Generative Adversarial Network for Face Recognition in degraded scenarios**; *Avishek Bhattacharjee, Samik Banerjee and Sukhendu Das*, In 11th Indian Conference on Computer Vision, Graphics and Image Processing, Hyderabad, India, December 18-22, 2018.
- **D2SC-GAN: Dual Deep-Shallow Channeled Generative Adversarial Network for Classroom Attendance using Face Recognition**; *Avishek Bhattacharjee and Sukhendu Das*, accepted for publication in **IEEE Transactions on Biometrics, Behavior, and Identity Science**, March 2020.

PROJECTS (Other)

Cook-To-Do **(February 2017)**
Microsoft Code.Fun.Do

Developed an Android application (Java, Python, HTML) which helps users to cook dishes by providing voice-based commands and onscreen timers while also providing integration with a marketplace through which the user can seamlessly order and pay for ingredients.

Disaster Management App **(October 2018)**
Microsoft Code.Fun.Do++

Developed an Android application (Java, Python, HTML) which crawls through the web to gather pre-disaster concerns and provides post-disaster management assistance by providing a platform to victims to form dynamic geo-location-based groups for communication.

AWARDS

- Recipient of Star Teaching Assistant award for Computational Engineering course at IIT Madras (Jul-Nov 2017).

SCHOLASTIC ACHIEVEMENTS

- 2^{nd}-Runner up in the Microsoft Code.Fun.Do++ 2018 held at the Indian Institute of Technology Madras.
- 2^{nd}-Runner up in the Microsoft Code.Fun.Do 2017 held at the Indian Institute of Technology Madras.
- Among Top-37 teams from India in the Microsoft Code.Fun.Do 2017 ShowCase held at Microsoft Hyderabad campus.

POSITIONS OF RESPONSIBILITY

- Coordinate Head (Database) of Phoenix, Tech Club of Netaji Subhash Engineering College. (Jan 2014 - Jan 2015).
- Part of a team of annotators for the Mouse Brain Architecture Project jointly carried out under the Cold Springs Harbor Laboratory, USA and Indian Institute of Technology Madras. (Jan 2017 - Jul 2017).
- Teaching Assistantship for courses in the Department of Computer Science and Engineering at Indian Institute of Technology Madras:
  - Teaching Assistant for Foundation of Computational Engineering, (Jul 2017 - Nov 2017).
  - Lead Teaching Assistant for Concepts in Statistical Learning Theory, (Jan 2018 - May 2018, Jan 2019 - May 2019).
  - Lead Teaching Assistant for Computer Graphics, (Jul 2018 - Nov 2018).
  - Lead Teaching Assistant for the Optimization Methods for Computer Vision Applications, (Jul 2019 - Present).
- Assisted in guiding an intern for Summer Fellowship Programme at Indian Institute of Technology Madras on "Online Face Recognition System using FaceNet and SVM." (May 2018 - Jul 2018).

CO-CURRICULAR ACTIVITIES

- Delivered a talk on "Computer Vision Applications for Smart Cities" at "Joint Indo-Japanese Smart City Symposium" at IIT Madras, October 2019.
- Attended the "Summer School on Computer Vision" held at IIIT Hyderabad from July 3^{rd} to 8^{th}, 2018.
- Participated in a four-week workshop on Internet-of-Things and Big Data-Hadoop held in Dept. of Computer Science & Engg. at Netaji Subhash Engineering College from May-June 2016.

REFERENCES

- **Prof. Sukhendu Das, *Ph.D.***
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  Department of Computer Science and Engineering
  Indian Institute of Technology Madras
  Chennai - 600036
  Tamil Nadu, India.
- **Prof. Anupam Ghosh, *Ph.D.***
  anupam[dot]ghosh[at]rediffmail[dot]com
  Department of Computer Science and Engineering
  Netaji Subhash Engineering College, affiliated to Maulana Abul Kalam Azad University of Technology
  Kolkata - 700152
  West Bengal, India.

PERSONAL DETAILS

- **LinkedIn**: `https://in.linkedin.com/in/avishekbhattacharjee93`
- **Google Scholar**: `https://scholar.google.com/citations?user=JC528xwAAAAJ`

DECLARATION

I hereby declare that all the information given above is true to the best of my knowledge as on July 26, 2020.